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Operating instructions
Crane scales

KERN HUS/HUM

Version 2.1
02/2005
GB

HUS/HUM-BA-e-0521

GB

KERN HUS/HUM

Version 2.1 02/2005

Operating instructions

Crane scales

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1 Technical data

1.1 KERN HUS

KERN	*HUS60K20*	*HUS150K50*	*HUS300K100*	*HUS600K200*
Readout	*0.02 kg*	*0.05 kg*	*0.1 kg*	*0.2 kg*
Weighing range	*60 kg*	*150 kg*	*300 kg*	*600 kg*
Taring range(subtractive)	*60 kg*	*150 kg*	*300 kg*	*600 kg*
Reproducibility	*0.02 kg*	*0.05 kg*	*0.1 kg*	*0.2 kg*
Linearity	*±0.04 kg*	*±0.1 kg*	*±0.2 kg*	*±0.4 kg*
Recommended adjusting weight (not attached)	*20 kg or 40 kg (class M3)*	*50 kg or 100 kg (class M3)*	*100 kg or 200 kg (class M3)*	*200 kg or 500 kg (class M3)*
Operating temperature	*+0 °C ... + 40 °C*			
Housing (B x D x H) in mm	*160 x 140 x 370*			
Weight (net)	*3 kg*			

1.2 KERN HUM

KERN	***HUM1000K500***	***HUM3000K1000***	***HUM5000K2000***	***HUM7500K5000***
Readout	*0,5 kg*	*1 kg*	*2 kg*	*5 kg*
Weighing range	*1000 kg*	*3000 kg*	*5000 kg*	*7500 kg*
Taring range(subtractive)	*1000 kg*	*3000 kg*	*5000 kg*	*7500 kg*
Reproducibility	*500g*	*1 kg*	*2 kg*	*5 kg*
Linearity	*±1 kg*	*±2 kg*	*±4 kg*	*±10 kg*
Recommended adjusting weight (not attached)	*500kg or 1000kg* *class (M3)*	*1000kg or 2000kg* *class (M3)*	*2000kg or 5000kg* *class (M3)*	*2000kg or 5000kg* *class (M3)*
Operating tem-perature	*+0 °C ... + 40 °C*			
Housing (B x D x H) in mm	*210 x 228 x 180*		*210 x 280 x 200*	
Weight (net)	*18 kg*		*38 kg*	

2 Declaration of conformity

KERN & Sohn GmbH
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Declaration of conformity

Declaration of conformity for apparatus with CE mark
Konformitätserklärung für Geräte mit CE-Zeichen
Déclaration de conformité pour appareils portant la marque CE
Declaración de conformidad para aparatos con disitintivo CE
Dichiarazione di conformitá per apparecchi contrassegnati con la marcatura CE

English We hereby declare that the product to which this declaration refers conforms with the following standards.

Deutsch Wir erklären hiermit, daß das Produkt, auf das sich diese Erklärung bezieht, mit den nachstehenden Normen übereinstimmt.

Français Nous déclarons avec cela responsabilité que le produit, auquel se rapporte la présente déclaration, est conforme aux normes citées ci-après.

Español Manifestamos en la presente que el producto al que se refiere esta declaración está de acuerdo con las normas siguientes

Italiano Dichiariamo con ciò che il prodotto al quale la presente dichiarazione si riferisce è conforme alle norme di seguito citate.

Electronic Scale: KERN HUM

Mark applied	EU Directive	Standards
CE	89/336/EEC EMC	EN 50081-1/1992 : EN 55014 EN 61000-3-2 EN 61000-3-3 EN 50082-1: EN 55104 (EN 61000-4-2 EN 61000-4-4, EN 61000-4-5, EN 61000-4-11, ENV 50140, ENV 50141)

Date: 22.10.2003 **Signature:**

Gottl. KERN & Sohn GmbH
Management

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Electronic Scale: KERN HUS

Mark applied	EU Directive	Standards
CE	89/336/EEC EMC	EN 50081-1/1992 : EN 55011+A1 :1998 EN 61000-3-2 EN 61000-3-3 EN 50082-1/1997, EN 50082-2/1995 : EN 61000-4-2 EN 61000-4-3 EN 61000-4-4 EN 61000-4-5 EN 61000-4-6 EN 61000-4-11 ENV 50204

Date: 22.10.2003 **Signature:**

Gottl. KERN & Sohn GmbH
Management

3 Fundamental information (general)

3.1 Intended use

The balance you have acquired serves to determine the weighing value of the material to be weighed. It is intended to be used as a “non-automatic“ balance, i.e. the item for weighing is affixed to the crane hook only vertically, manually, carefully and without jolting. The weighing value can be read off after a stable weighing value has been obtained.

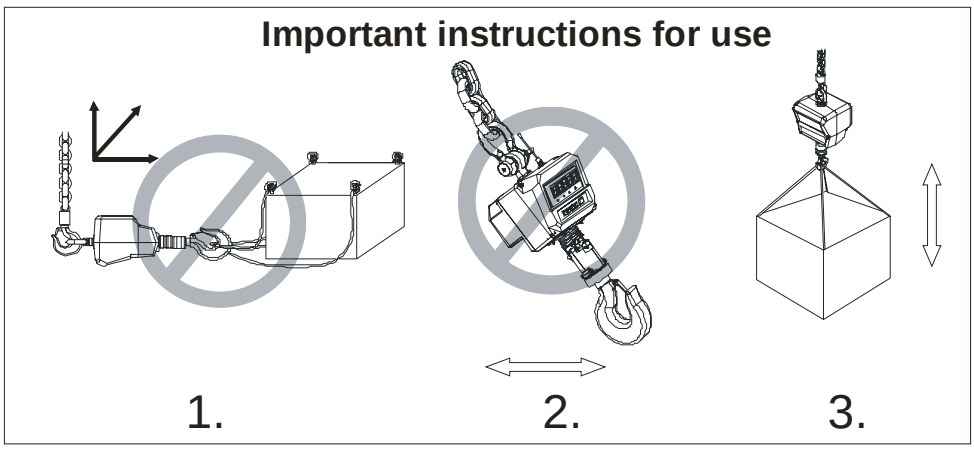
3.2 Inappropriate use

Do not use the balance for dynamic weighing. In the event that small quantities are removed or added to the material to be weighed, incorrect weighing results can be displayed due to the “stability compensation“ in the balance. (Example: Slow draining off of liquid from a container suspended from the balance). Do not attach a continuous load. This can damage the measuring unit as well as the parts, relevant to safety.

Attention:

- **Make sure that there never are persons or objects under the load which could be injured or damaged!**
- **The balance is not suitable for weighing of persons !**
- **The balance does not correspond to the medical products law (MPG).**
- **Load the balance only in vertical traction direction (see picture 3.)**
- **Always avoid vibrations and horizontal forces.**
- **Prevent jolts, torsion and oscillation (e.g. by appending slopingly) of all kinds. Be sure to prevent overloading the balance in excess of the stated maximum load (max.), minus any tare weight that may possibly exist. This could damage the balance (risk of breakage). o not use the crane balance to transport loads (e.g. travelling crane).**
- **Never operate the balance in hazardous locations. The series design is not explosion-proof.**
- **Structural alterations may not be made to the balance. This can lead to incorrect weighing results, faults concerning safety regulations as well as to destruction of the balance.**
- **Avoid sudden and jerky acceleration or deceleration of the load (risk of breakage!!)**

The balance may only be used in compliance with the described guidelines. Varying areas of application/planned use must be approved by KERN in writing.



3.3 Fundamental safety information

Do not use the crane balance to transport loads (e.g. travelling crane)

Crane balance is only suitable for hanging from a mechanical hook, e.g. a crane hook. Check whether the used crane hook or the lifting device are suitable for the suspended load.

Prevent jolts and torsion of all kinds

Never use the crane balance over the maximum permitted weight (!!Danger of breaking!!).

Always make sure that there are no living beings or materials below the load that could be injured or damaged

3.4 Observe the information in the operating instructions

Please read the operating instructions carefully before erecting and commissioning, even if you already have experience with KERN balances.

3.5 Staff training

The device may only be operated and looked after by trained members of staff.

3.6 Guarantee

The guarantee is not valid following

- non-observation of our guidelines in the operating instructions
- use outside the described applications
- alteration to or opening of the device
- mechanical damage and damage caused by media, liquids
- natural wear and tear
- inappropriate erection or electric installation
- overloading of the measuring equipment

3.7 Monitoring the test substances

The metrology features of the balance and any possible available adjusting weight must be checked at regular intervals within the scope of quality assurance. For this purpose, the answerable user must define a suitable interval as well as the nature and scope of this check. Information is available on KERN's home page (www.kern-sohn.com) with regard to the monitoring of balance test substances and the test weights required for this. Test weights and balances can be adjusted quickly and at a reasonable price in KERN's accredited DKD calibration laboratory (return to national normal).

4 Transport and storage

4.1 Acceptance check

Please check the packaging immediately upon delivery and the device during unpacking for any visible signs of external damage.

4.2 Packaging

Please retain all parts of the original packaging in case it should be necessary to return items at any time.
Only the original packaging should be used for return consignments.
Before despatch, disconnect all attached cables and loose/movable parts.
Apply any intended transport security devices. Secure all parts, e.g. glass windshield, weighing plate, power unit etc., to prevent slipping and damage.

5 Unpacking, installation and commissioning

5.1 Place of installation, place of use

Crane balance is only suitable for hanging from a mechanical hook, e.g. a crane hook. Check whether the used crane hook or the lifting device are suitable for the suspended load.

The balance is constructed in such a way that reliable weighing results can be achieved under normal application conditions.
By selecting the correct location for your balance, you will be able to work quickly and precisely.

Therefore please observe the following at the place of installation:

- Avoid extreme heat as well as temperature fluctuation caused by installing next to a radiator or in the direct sunlight;
- Protect the balance against direct draughts due to open windows and doors;
- Avoid jarring during weighing;
- Protect the balance against high humidity, vapours and dust;
- Do not expose the device to extreme dampness for longer periods of time. Inadmissible bedewing (condensation of air moisture on the device) can occur if a cold device is taken into a significantly warmer environment. In this case, please acclimatise the device for approx. 2 hours at room temperature after it has been disconnected from the mains.

Major display deviations (incorrect weighing results) are possible if electromagnetic fields occur as well as due to static charging, currents and instable power supply. It is then necessary to change the location.

5.2 Unpacking

Carefully take the balance out of its package, remove the plastic covering and hang mount the balance at the desired location with the mounting eyelet.

Please keep all parts of the packaging for any possible despatch in the future. Check the balance immediately for any possible visible damage suffered in transit and check that the accessories are complete.

Standard accessories:

- *Crane balance with built in rechargeable battery*
- *Mains device (for operating the crane balance as well as for charging the built in rechargeable battery)*
- *Remote control (including batteries)*
- *Operating instructions*

5.3 Power Supply – Mains Supply

Set the voltage on the mains adapter to the mains voltage of the socket!
The balance may only be connected with the attached power pack .

	POWER UNIT
HUS	9 V DC
HUM	15 V DC

Connect the adapter lead to the bottom of the balance

Only then
should the mains adapter be put into the socket.

5.4 Power Supply – Battery Supply

The rechargeable battery is built in to the crane balance and can be charged by connecting the mains adapter.

	CHARGING TIME	**OPERATING TIME**
KERN HUS	approx. 8 hours	approx. 120 hours
KERN HUM	approx. 8 hours	approx. 120 hours

Before using for the first time please charge the battery until the charge display (LED on the bottom) glows green.

5.5 Initial start-up

A warm-up time of 15 minutes stabilises the measured values after switching on.

Intended use at the initial start-up

The balance you have acquired serves to determine the weighing value of the material to be weighed. It is intended to be used as a “non-automatic“ balance, i.e. the item for weighing is affixed to the crane hook only vertically, manually, carefully and without jolting. The weighing value can be read off after a stable weighing value has been obtained.

Safety notes

Do not use the crane balance to transport loads (e.g. travelling crane)

Crane balance is only suitable for hanging from a mechanical hook, e.g. a crane hook. Check whether the used crane hook or the lifting device are suitable for the suspended load.

Prevent jolts and torsion of all kinds

Never use the crane balance over the maximum permitted weight (!!Danger of breaking!!).

Always make sure that there are no living beings or materials below the load that could be injured or damaged

The accuracy of the balance depends on the local acceleration of the fall.
Please be sure to observe the information in the chapter on adjusting.

5.6 Adjustment

As the acceleration value due to gravity is not the same at every location on earth, each balance must be coordinated – in compliance with the underlying physical weighing principle - to the existing acceleration due to gravity at its place of location (only if the balance has not already been adjusted to the location in the factory). This adjustment process must be carried out during the initial start-up, after change in location and variation of surrounding temperature. It is also recommendable to adjust the balance periodically during weighing operation in order to obtain exact measured values.

5.7 Adjusting

Using a precision weight, the accuracy of the balance can be checked at any time and adjusted.

Adjustment procedure:

Check that the surrounding conditions are stable.
A short warm-up time of about 15 minutes is recommended for stabilisation.

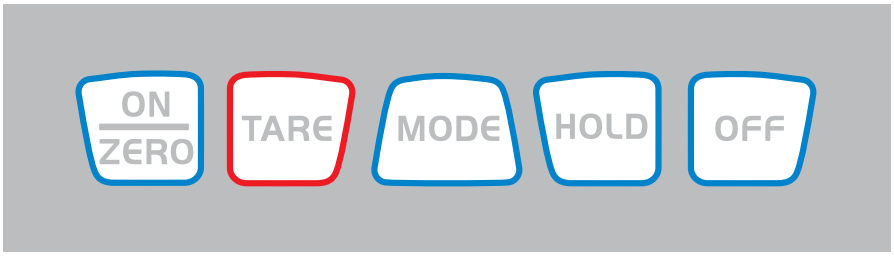
KERN HUS	***Balance display***
1. Press MODE key and ON/ZERO key simultaneously. CAL? appears on the display	CAL?
2. Press MODE key. The adjusting is started. The adjusting is deactivated by pressing any other keys.	Load e. g. 40.00
3. The display tells you to hang the appropriate adjusting weight on the hook (e. g. 40 kg)	or e. g. 20.00
Do not shake the balance!	
4. The adjusting has been completed when the display shows “done“.	done

KERN HUM	*Balance display*
1. Switch off balance	CAL?
2. Switch on balance and simultaneously hold down **ZERO + MODE**	YES
3. Press MODE key. The adjusting is started. The adjusting is deactivated by pressing any other keys.	Load
4. The display tells you to hang the appropriate adjusting weight on the hook (e. g. 40 kg)	e. g. 40.00 or e. g. 20.00
Do not shake the balance!	
5. The adjusting has been completed when the display shows “done“.	done

6 Operation

6.1 Operating elements KERN HUS

6.1.1 Overview of the keypad



The following keys are available:

ON/ZERO key	On switch to switch on the display or if the balance is switched on the **ON/ZERO** key sets the balance to zero. The **ZERO** function is only activated for small loads.
TARE key	TARE Recording tare values The weight display is set to zero by pressing the TARE key. The TARE function is activated for the entire weighing range.
MODE key	Luminous display This is switched on or off with MODE. Key required additionally for configuration.
HOLD key	Freezing the display value By pressing the HOLD key the value shown in the display is frozen for a prescribed amount of time. (Adjustable time interval)
OFF key	Switch-off key For switching off the balance.

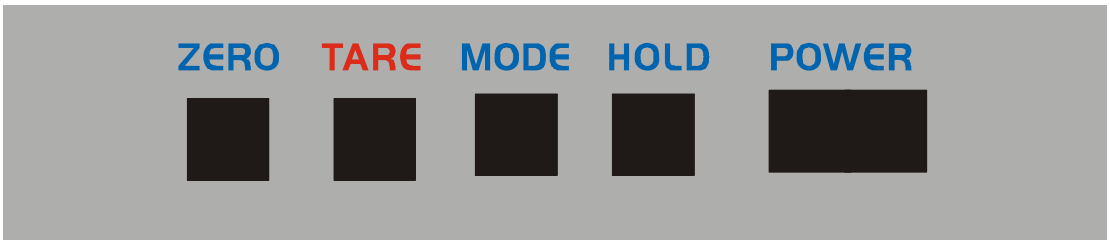
6.1.2 Overview of display

LCD display with the following details

Weight display:	e. g. 20.41
Zero display: o	Balance zero display If the balance is set to zero the circle o in the upper left hand section of the display lights up
TARE: <=	Tare display The arrow in the lower right hand display indicates that a tare value is being applied
Battery charging display:	LED on the lower side of the balance This lights up when the battery needs to be recharged.

6.2 Operating elements KERN HUM

6.2.1 Overview of the keypad



The following keys are available:

ZERO key	On switch to switch on the display or if the balance is switched on the **ON/ZERO** key sets the balance to zero. The **ZERO** funktion is only activated for small loads.
TARE key	Recording tare values The weight display is set to zero by pressing the **TARE** key. The **TARE** function is activated for the entire weighing range
MODE key	Key for configuration
HOLD key	Freezing the display value By pressing the HOLD key the value shown in the display is frozen for a prescribed amount of time.
Power-key	Switch-off key For switching off the balance.

6.2.2 Overview of display

Display with the following details

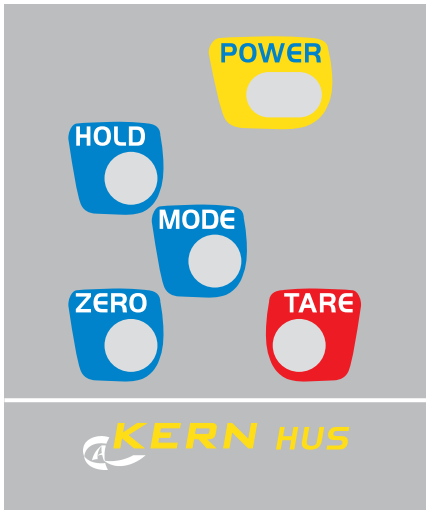
Weight display:	e. g. 20,41
Zero display:	Balance zero display If the balance is set to zero, the **ZERO LED** underneath the indicator is illuminated.
TARE: <=	Tare display The **TARE LED** underneath the indicator illuminates when the balance has been set to zero.
Kg:	Unit indicator LED illuminates if kilogramme unit is set

6.3 Remote Control

The maximum distance for the remote control function is approx.:

KERN HUS	3 metres
KERN HUM	25 metres

The following keys are available:



Power key (KERN HUS)

If the balance is switched off during operation by the OFF key it is switched to stand-by by pressing the power key

The following picture appears on the display: - - - -
By pressing the power key once again the display becomes active again.

The following keys correspond to the keys on the crane balance.

MODE key

HOLD key

ZERO key

TARE key

7 Operating Functions

7.1 Operating the balance

Intended use
The balance you have acquired serves to determine the weighing value of the material to be weighed. It is intended to be used as a “non-automatic“ balance, i.e. the item for weighing is affixed to the crane hook only vertically, manually, carefully and without jolting. The weighing value can be read off after a stable weighing value has been obtained.

Safety notes

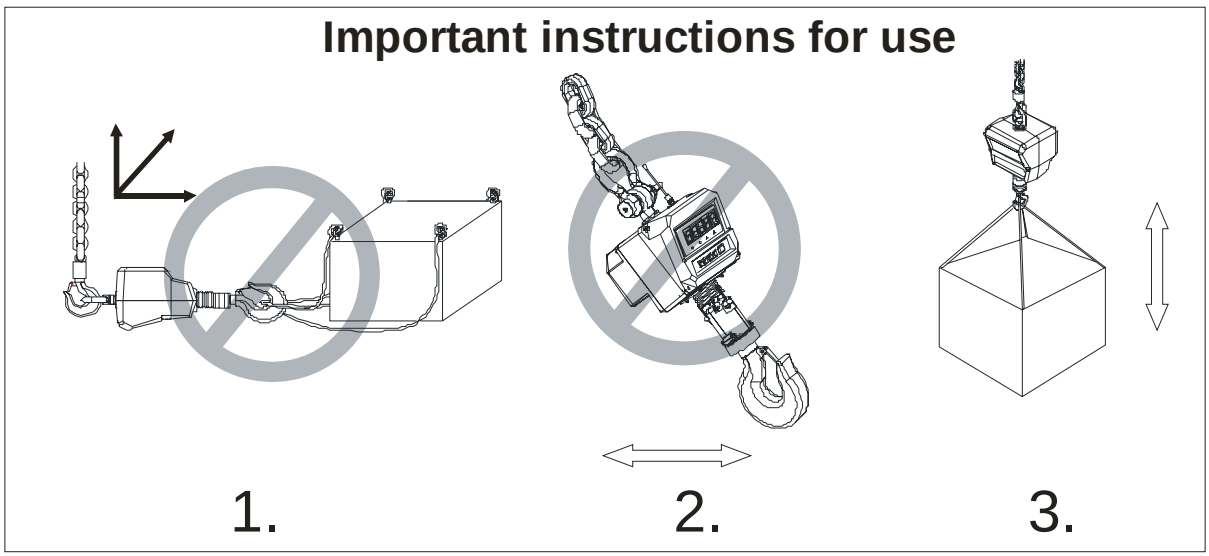
⚠ Do not use the crane balance to transport loads (e.g. travelling crane)

⚠ Crane balance is only suitable for hanging from a mechanical hook, e.g. a crane hook. Check whether the used crane hook or the lifting device are suitable for the suspended load.

⚠ Prevent jolts and torsion of all kinds

⚠ Never use the crane balance over the maximum permitted weight (!!Danger of breaking!!).

⚠ Always make sure that there are no living beings or materials below the load that could be injured or damaged



- Switch on the balance with the **ON-ZERO(or Power)** key.
  The display is switched on and the test is started.
- The zero display appears. The balance is ready for operation.

7.2 Setting the balance to zero

- Environmental conditions can lead to the balance not displaying exactly "**0.00**" in spite of the hook not taking any strain. However, you can set the display of your balance to zero any time and therefore ensure that the weighing starts at zero. Setting to zero with a weight on the balance is only possible within a certain range which depends on the type of balance being used. If the balance cannot be set to zero with a weight on it this range has been exceeded. The weighing range (max.) of the balance is not lost by setting to zero.

7.3 Taring

- The weight of any container can be tared by pressing a button so that with subsequent weighing the net weight of the object being weighed is always displayed.

- Hang the empty tare container on the hook. The total weight of the tare container is displayed.

- Press the **TARE** key to start the taring process.

- When taring has been completed zero (0.00 kg) is displayed.

- Place the object to be weighed in the tare container.

- You can now read the weight from the display.

Tip

The weighing range (max.) of the balance is reduced by the range set to zero.

The balance can store only one tare value.

When the balance has no weight on it the stored tare value is displayed with a minus sign.

To delete the stored tare value remove the object from the tare container and then press the **TARE** key.

7.4 Auto Hold Function

By pressing the **HOLD** key the weight value (also when the weight value is changing) is frozen in the display for a prescribed amount of time or until another key is pressed.

Only KERN HUS
On the KERN HUS model the setting can be selected whether the “frozen“ vallue is displayed until a key is pressed or whether the balance returns to weighing mode after pre-defined time intervals.

The amount of time is set as follows:

- Press the **HOLD** key for 2 sec.

- The HOLD-display value shows e.g. HOD _8
  8 means the display shows the value being displayed for 8 sec.
- Press the **HOLD** key repeatedly and the following intervals (0, 3, 5, 8, 10, 12, 15, 17, 20 in sec.) are displayed one after the other.

  0 means here that the display value remains unchanged until the HOLD key is pressed again.

- Changing the set interval is done by pressing the **HOLD** key repeatedly. Select the desired number. Then wait 5 sec. and the time set is stored.

7.5 Automatic Switch Off (Auto-off)

- The balance has the option of an automatic switch off. Here the display is switched off approx. 4 minutes after the last time the balance was used.

Kern HUS:
- Press the **OFF** key. The display is switched off.

- Hold down the **TARE** key and press the **ON/ZERO** key. The display shows F.1.

Kern HUM:
- Press the **Power-0** key. The display is switched off.

- Hold down the **TARE** key and press the **Power-1** key. The display shows F.1.

- Press the **TARE** key until F.4 appears. Then press the **MODE** key.

  0 off or 4off appears. (modifying with **MODE**)

  0off means no automatic switch off.
  4off means automatic switch off after not being used for 4 minutes.

- Select the desired means of switching off and press the **MODE** key.
  The setting is stored.

8 Maintenance, upkeep, disposal

8.1 Cleaning

Please disconnect the device from the operating voltage before cleaning.

Only use a cloth dampened with mild suds and not aggressive cleaning agents (solvents or similar). Please ensure that fluids are not able to get into the device and rub off using a clean, soft cloth.
Loose sample residue/powder can be removed carefully using a brush or hand vacuum cleaner.
Remove any spilt material to be weighed immediately.

8.2 Maintenance, upkeep

The operating company shall ensure that load-bearing components are checked by a competent person at maximum intervals of one year.
These checks can be necessary at intervals shorter than one year depending on the conditions of use. This applies, for example, in the case of particularly frequent use, increased wear and corrosion.

The device may only be opened by trained service engineers authorised by KERN.
Disconnect from the mains supply before opening.

8.3 Disposal

The operating company shall dispose of the packaging and the device in compliance with the valid national or regional law of the operating location.

8.4 Troubleshooting

The balance should be switched off for a short time following an interruption in the programme sequence and disconnected from the mains supply. It is then necessary to repeat the weighing process from the beginning.

Help:

Interruption	***Possible cause***
Weight display is not illuminated.	• *The balance is not switched on.* • *The mains supply connection has been interrupted (mains cable not plugged in/faulty).* • *Power supply interrupted. .*
The weight display changes continually	• *Draught/air movement* • *Table/floor vibrations* • *The weighing plate is in contact with foreign matter.* • *Electromagnetic fields / static charging (choose different location/switch off interfering device if possible)*
The weighing result is obviously incorrect	• *The balance display is not set to zero* • *Adjustment is no longer correct.* • *Great fluctuations in temperature.* • *Electromagnetic fields / static charging (choose different location/switch off interfering device if possible)*

Switch the balance off if other error messages should appear and then switch on again. Contact the manufacturer if the error message does not disappear.